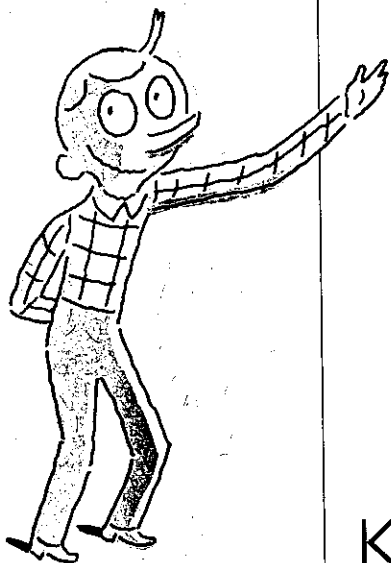


# **Your Kenwood SW-X1 THX Subwoofer Owner's Manual**



**KENWOOD**

# Table of Contents.

## **Meet your THX Subwoofer ..... 3.**

Unpacking your Kenwood SW-X1

What else will you need?

Register with us!

## **Safety First ..... 4.**

Important Safety Precautions

## **Fitting the SW-X1 into your home theater..... 5.**

## **What is THX? ..... 6.**

Why is it called 'THX'?

The story of movie sound

How to spot true THX sound

## **Installing your SW-X1 ..... 7.**

Measuring the room

Placing your SW-X1 Subwoofer

Some suggestions for placement

## **Connecting the SW-X1 to an amplifier ..... 8.**

Connecting speaker wire to the SW-X1

Connecting speaker wire to your amplifier

Using more than one subwoofer

Activating the crossover

## **Fine-tuning the sound of your system..... 10.**

Calibrating your system

Searching for room rattles

About Lucasfilm's WOW! disc

## **Kenwood SW-X1 Subwoofer specifications ..... 11.**

# Meet your THX Subwoofer.

You're just a few steps away from experiencing a new level of bass reproduction from your home theater system. Although installing your new subwoofer isn't difficult, you should follow the instructions in this manual carefully to get maximum performance from your Kenwood SW-X1. So relax, roll up your sleeves and spend a little time with this manual before you get started.

If you are connecting other equipment, such as receivers, controller/tuners, amplifiers, other speakers, laser disc players, VCRs, projectors, or direct view televisions, use this manual in combination with the manuals from those components.

Be sure to familiarize yourself with all the elements of your system, and above all, take your time! The results you'll achieve are more than worth it.

## Unpacking your Kenwood SW-X1

Unpack your unit carefully, and examine the unit for shipping damage. If it is damaged or fails to operate, notify your Kenwood dealer immediately. If your SW-X1 was shipped to you directly, notify the shipping company without delay. Only the person or company who originally received the unit can file a claim against the carrier for shipping damage.

- Keep the original carton and packing materials in case you need to transport or ship your Kenwood SW-X1 in the future.

## What else will you need?

In your Kenwood SW-X1 box you should have:

### Kenwood SW-X1 Subwoofer (1)

In addition, you will need speaker wire to connect the SW-X1 to your amplifier (we ask you to buy the wire separately, since we don't know which size wire you will need). Your THX Home Theater system will sound better if you use the correct gauge of speaker wire to connect your SW-X1 to your amplifier. Depending on the length of the wire you need, Lucasfilm's THX division recommends the following:

### Speaker Wire Length

Up to 24 feet	16 gauge or larger
Up to 36 feet	14 gauge or larger
Up to 58 feet	12 gauge or larger



Before you run out to buy speaker wire, read the section on Speaker Placement later in this manual! It will help you decide where to place the speakers, which will determine the length of wire you'll need.

## Register with us!

Please take a moment right now to fill out the Product Registration Card we've included in this package. We'll keep your name and serial number in our database so that if you need to call us, we can serve you better.

Record the serial number here:

so you'll have it handy when you call.

# Safety First.

Please take a few minutes to review these safety practices before setting up and using your Kenwood SW-X1.

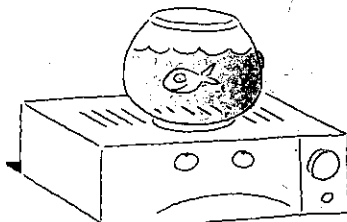


Please read these operating and maintenance instructions carefully.

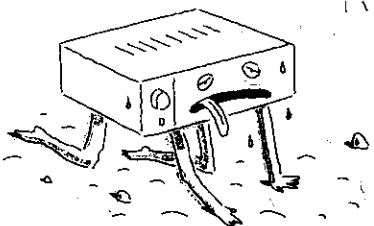
## Important Safety Precautions

**1. Dispose of the packaging materials properly.** After you take the unit out of its shipping bag, dispose of the bag, keeping it out of the reach of children and animals. Be aware that the bag could cause suffocation.

**2. Protect your unit from moisture.** Don't place your unit near water, for example, a bathtub, kitchen sink, laundry tub, wet basement or near a swimming pool.

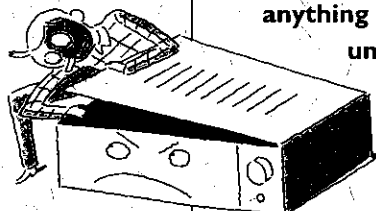


**3. Keep your unit out of extreme hot and cold.** Your unit may not work properly if it is used at extremely low or freezing temperatures. Don't place your unit near radiators, heat registers, stoves or other heat sources.

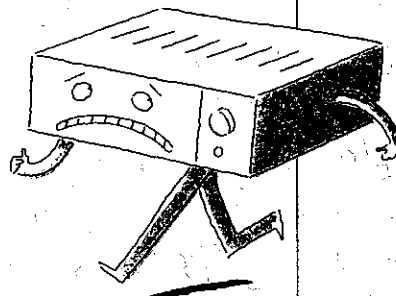


**4. Don't put objects and liquids into the unit!** NEVER permit children to put anything into the unit.

**5. NEVER try to open the unit or take it apart.**



**6. To clean, use a clean, dry cloth.** To avoid damage, NEVER use volatile solvents such as alcohol, paint thinner, gasoline, benzene, etc. to clean the cabinet.



**7. Do NOT attempt to service this unit.** All servicing should be referred to qualified service personnel. This includes the following problems:

- Objects have fallen, or liquids have been spilled into the unit.
- The unit has been exposed to moisture.
- The unit doesn't appear to operate normally or exhibits a marked change in performance.
- The unit has been dropped or the case has been damaged.

**8. If you see smoke or smell anything unusual near your unit, turn off the entire system immediately, and unplug it from the wall.**

Then contact your Kenwood dealer or nearest service center.



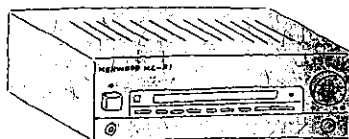
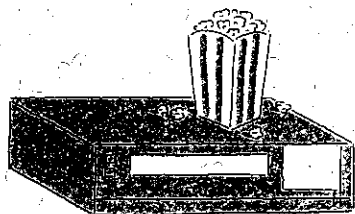
# Fitting the SW-X1 into your home theater.

Your Kenwood THX-certified SW-X1 Subwoofer is designed to work with your other home theater components to bring the magic of movies into your home. Of course there are a number of other components that will help you perform that trick (some required, some optional). These might come from a number of manufacturers and they'll vary to suit your taste and listening environment, so we won't talk specifics.

To truly transform your listening room, however, we recommend that you use THX-approved home theater audio components. Components that carry the 'THX' logo have passed strict testing under the guidelines specified by Lucasfilm, Ltd., which were designed to bring you as close as possible to the listening experience intended by film directors and sound engineers. Whether you're watching a movie, a music video, or a made-for-TV masterpiece, your Kenwood home theater will transform your entertainment experience.

## Video Source(s)

You've got some choices here—a laser disc player, a high-fidelity VCR or some other source (video camera). You get the picture. The resolution and quality of your home theater viewing will depend on the video source you choose. To date, laser disc players provide the best quality.



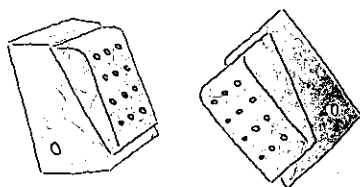
## Controller/Tuner (like the Kenwood KC-X1)

The 'brains' behind your THX home theater, this high-fidelity component incorporates proprietary THX Cinema circuitry as well as Dolby Pro-Logic, Dolby 3 Stereo, and DSP Logic surround modes. For the best picture quality and resolution, the unit should be equipped with S-video connectors for video components with S-video capability. It also acts as a video switcher for your video and audio components.



## Power amplifier (like the Kenwood KM-X1)

To add 'muscle' to your home theater mix you'll need an amplifier (or more). The ideal choice should provide equal power to each speaker—left, center, right, two surround speakers, and one or two subwoofer(s).

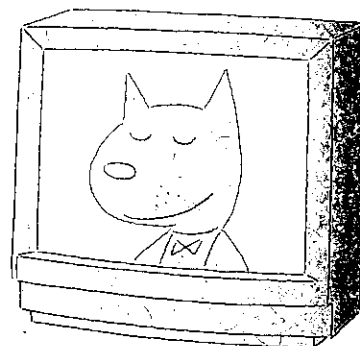


## Left and Right Surround Speakers

Step right into the movie scene by surrounding yourself with sound. Effective surround speakers envelop the listener in sound rather than give the impression that sound is coming from a specific speaker location.

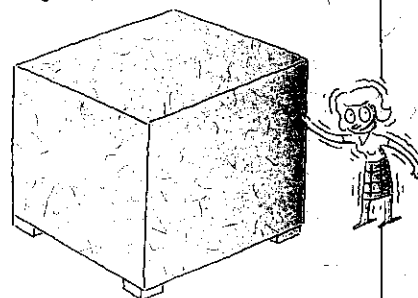
## Monitor

Whether you choose a television or a projector and screen will depend on things like the picture quality and resolution you're looking for, the size of the room you're working with, and the amount of money you'd like to spend.



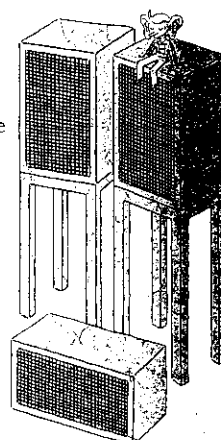
## Kenwood SW-X1 Subwoofer

Adding the low-end energy that makes the action come alive, the SW-X1 Subwoofer reproduces a soundtrack's low-frequency signals for visceral bass you can feel! It also enables you to use smaller left, center, and right front speakers (because they no longer have the power-intensive job of reproducing bass).



## Left, Center, and Right (LCR) Speakers

These three front speakers provide optimum stereo imaging and sound localization, and more accurate pans (i.e., sound moving from one side of the screen to the other). Having three front speakers also provides seating position flexibility.



# What is THX?

A THX Home Theater system brings the magic of the original film soundtrack into your home. Unlike any other sound system, THX recreates the true audio experience created by the director and sound engineers in the original studio dubbing sessions.

## Why is it called 'THX'?

The name has two sources. *THX 1138*, a science fiction movie, was film director and producer George Lucas' first feature-length film. It also comes from the name of Lucasfilm, Ltd.'s Technical Director, Tomlinson Holman, who created THX sound through a series of experiments (Tomlinson Holman eXperiment).

## The story of movie sound

From the beginning of 'talkies', directors understood that sound was a critical element of a movie. Sound had the power to draw the viewers out of their seats and into the movie action.

Back in the 1940s when the movie studios owned their own theaters, it was easy to control sound quality. However, by the 1950s, everything changed. The studios were forced to sell their theaters after an anti-trust suit was brought against them by the government. As a result, the advancement of sound technology in movie theaters virtually stopped. It wasn't until 1970 that movie

sound started to improve again. In that year, Dolby Stereo, a process that surrounds listeners in sound, was introduced by Dolby Laboratories. One of the first commercially successful movies to use Dolby Stereo was George Lucas' *Star Wars*, which debuted in 1977. With *Star Wars*, movie sound was changed forever. People were rushing to see movies with Dolby Stereo, confirming what directors knew all along—sound draws an audience into a movie like nothing else can.

In spite of the success of Dolby Stereo, quality control of sound was still virtually non-existent in the movie industry. Even the best theaters sounded different from one another and did not necessarily reproduce the sound the director intended. So, in 1982, George Lucas gave the green light to his Technical Director, Tomlinson Holman, to create a new theater sound system that would follow the standards set by the Society of Motion Picture and Television Engineers. The result: the THX sound system. Today, there are hundreds of THX theaters worldwide. And with the advent of the THX home theater system, the standard for movie theater sound excellence is also quickly becoming the standard for home theaters.

## How to spot true THX sound

So what makes THX Cinema so terrific? Lucasfilm, Ltd. has estab-

lished guidelines to ensure that THX systems, properly installed, meet these six criteria:

**1. Dialog intelligibility.** Dialog is always clear and easy to understand—even in the midst of loud sound effects and during the most hushed conversation.

**2. Good sound localization.** Sound matches the action; for example, the sound of breaking glass is located near the image of the shattering window.

**3. Diffuse surround sound.** Sounds—such as the wind blowing or rain falling—don't sound as if they're coming from a specific speaker, distracting the listeners and removing them from the environment of the film.

**4. Full and flat frequency response.** THX sound matches the range of the original movie sound track as closely as possible.

**5. Full dynamic range.** The ability to reproduce both soft and loud sounds with equal clarity.

**6. Evenness of sound movement along all axes.** Sound movement, such as a train traveling from one side of the screen to the other, is even along the entire expanse of the screen (or from the screen to the rear of the room).

# Installing your SW-X1.

The size of your home theater room will determine how many subwoofers you'll need.

## Measuring the room

Get out your measuring tape and check the number of cubic feet in the room. Calculate this figure by multiplying the length by the width by the height of the room ( $L \times W \times H$  = total cubic feet).

- If the room is smaller than 3,000 cubic feet, a single SW-X1 should work very well.
- If the room is 3,000 cubic feet or larger (for example, a room 15' wide, 22' long, with a 9' ceiling), you will need two SW-X1s to produce the high levels of distortion-free deep bass specified by Lucasfilm's THX division.
- If the room is much larger than 6,000 cubic feet, consider another room, or ask for professional assistance.

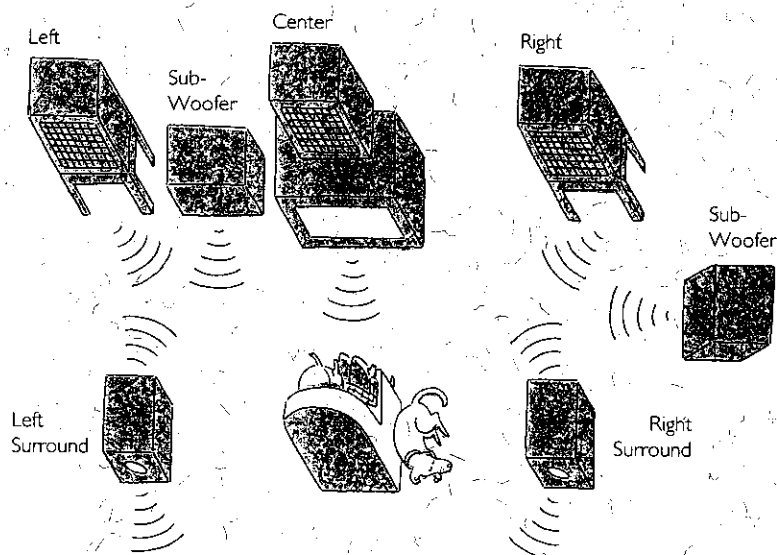
## Placing your SW-X1 Subwoofer

It's time to decide on a place for your SW-X1. This just might be the easiest speaker installation you will ever perform. The low bass sound of the SW-X1 (or any subwoofer) is non-directional, which means that the speaker does not send its soundwaves out in a particular direction. So, where you place the SW-X1 is not as critical as it is for the LCR speakers.

No matter where you place it in the room, it will sound fine. However, where you place it affects the low bass performance. You should experiment with different room locations to find the spot that produces the best sound in the seating area. Be sure to leave enough speaker wire so you can move the SW-X1 around the room freely while you're deciding.

## Some suggestions for placement

- Placing the SW-X1 in line with the front (LCR) speakers yields the smoothest match between the subwoofer and your LCR speakers.
- You can place the SW-X1 near your television, since the SW-X1 is magnetically shielded and will not distort the picture.
- Placing the SW-X1 next to a wall yields more deep bass output than placing it away from a wall.
- Placing the SW-X1 in a corner yields the deepest bass output overall, but the bass level may be uneven throughout the room. This means that some areas of the room may have too much bass, while other areas may not have enough.
- If you're using two SW-X1s, you can get the smoothest sound by placing them asymmetrically in the room. For example, place one along the front wall near the television and the other along a side wall near the seating position.
- Once you settle on a location, be sure to leave yourself some room for minor movements of a few inches—this can help fine tune the sound in the seating area.



# Connecting the SW-X1 to an amplifier.

Now that you've decided on a place for your SW-X1, you're ready to connect it to your amplifier!

## Connecting speaker wire to the SW-X1

How you connect the speaker wire to the SW-X1 depends on the type of speaker wire you bought. The SW-X1 has speaker wire connectors called '5-way connectors', so many different types of speaker wire connectors will work. In each of these cases, make sure you connect the positive half of the speaker wire to the positive connectors (+) and the negative half to the negative (-) connectors. If these connections are mismatched, you will get poor bass performance and weak stereo sound-placement characteristics.

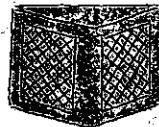
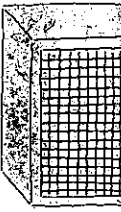
## Connecting speaker wire to your amplifier

Whether you are connecting the SW-X1 to a Kenwood KM-X1 or to another manufacturer's amplifier, follow the instructions in your amplifier user's manual.

Front Speaker (Right)

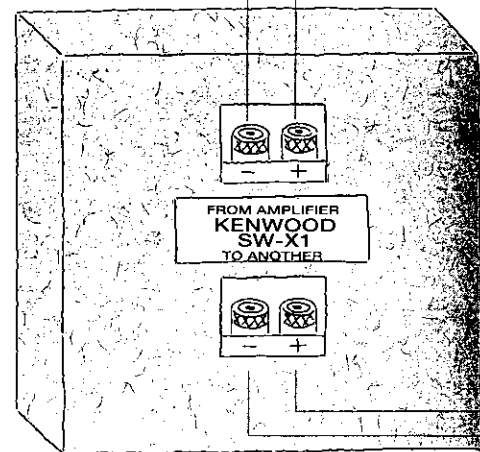


Front Speaker (Center)

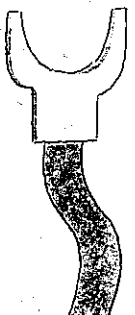
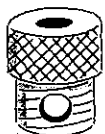


Surround Speaker (Right)

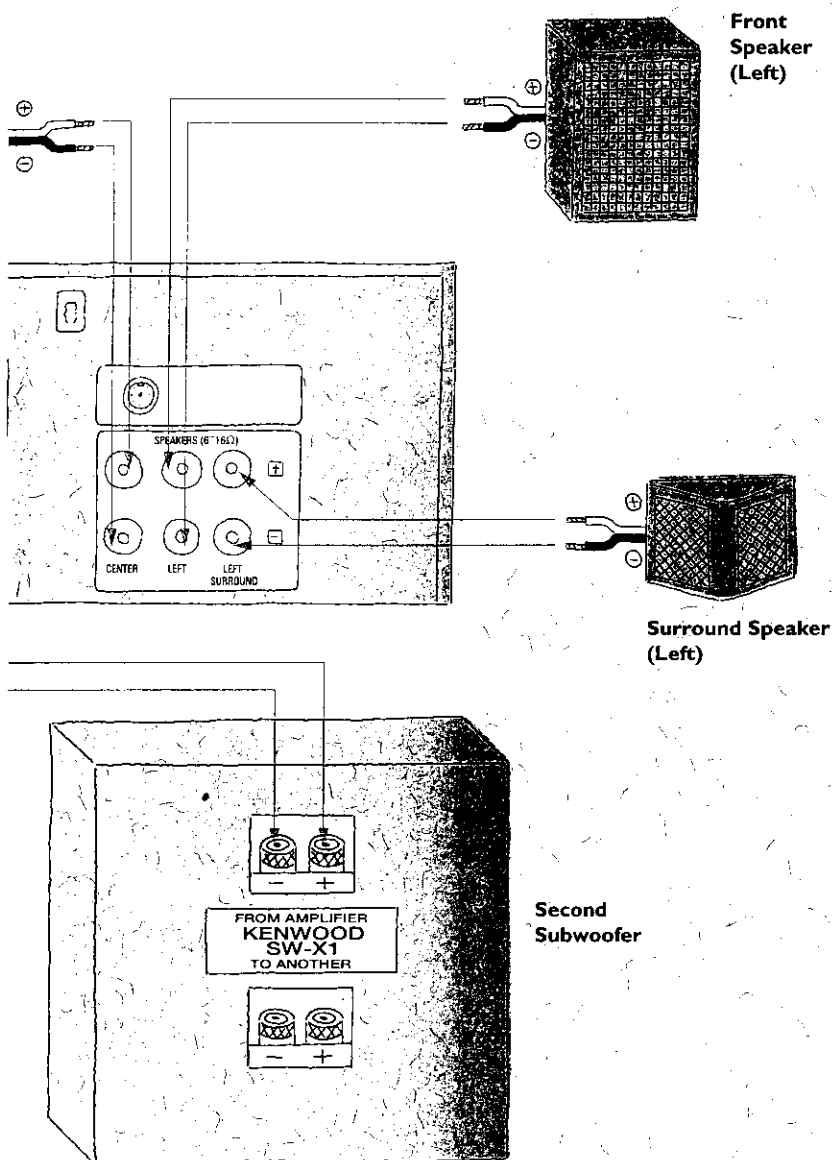
First Subwoofer



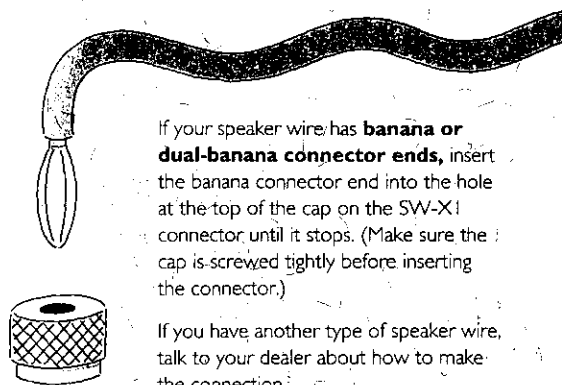
If your speaker wire has **bare wire or soldered ends**, unscrew the round 'cap' on the SW-X1 connector until it stops, then insert one end of the speaker wire into the hole in the threaded stem of the connector. Screw the cap to tighten until it holds the speaker wire firmly. Make sure that the wires on the positive and negative connectors do not touch each other. (If you bought the bare speaker wire 'as-is', you will need to strip the plastic cover from about 1 inch of the wire end before inserting it into the connector. If you're not sure how to do this, talk to your Kenwood dealer.)







If your speaker wire has **spade lugs**, unscrew the 'cap' on the SW-X1 connector until it stops, then insert the spade lug around the threaded stem of the connector. Screw the cap to tighten until it holds the speaker wire firmly. You may need to insert one prong of the lug through the hole in the stem if it is too narrow to fit around the threaded stem.



If your speaker wire has **banana or dual-banana connector ends**, insert the banana connector end into the hole at the top of the cap on the SW-X1 connector until it stops. (Make sure the cap is screwed tightly before inserting the connector.)

If you have another type of speaker wire, talk to your dealer about how to make the connection.

## Using more than one subwoofer

If your room is large enough to benefit from two subwoofers (see 'Measure your room' on page 7), you'll need to connect the second SW-X1 to the first. We'll assume you've already connected the first SW-X1 to the amplifier. Take an additional length of speaker wire and attach one end to the connection labeled 'To another' on the first SW-X1. Then connect the other end of the speaker wire to the connection labeled 'From amplifier' on the second SW-X1. Be sure to follow the instructions in the diagram at left for actually connecting the speaker wires.

## Activating the crossover

The electronic crossover in all THX-certified controllers sends the bass frequencies (80Hz and below) to the subwoofer. Before turning on power to the controller/tuner or receiver, be sure that the crossover is activated. If your audio system does not have an electronic crossover and power amplifier suitable for use with subwoofers, contact your Kenwood dealer.

**Note:** If you are using a Kenwood KC-X1 Controller/Tuner and you are not getting sound from your subwoofer, turn the main power off, set the subwoofer switch to 'on', then turn the main power back on.

# Fine-tuning the sound of your system.

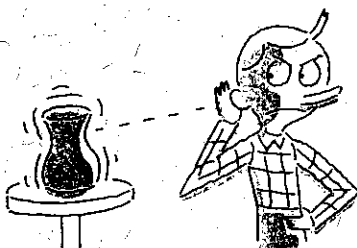
Now that you've set up your SW-XI along with the rest of your THX Home Theater system, there are a few things you can do to make sure it all sounds great. These involve calibrating the system and searching out room rattles.

## Calibrating your system

Calibration means adjusting the sound of your system to the proper sonic level by balancing all six channels and setting the playback volume level. Don't panic, it's pretty easy to do. If you're using the Kenwood KC-XI, there are easy-to-follow calibration instructions included in *Getting to Know Your THX Home Theater System*. If you own another THX controller, look for instructions in the user's manual you received with your component.

## Searching for room rattles

You may find that the high output of the SW-XI causes rattles in your home theater room. A few common sources of rattles are furniture, loose window frames, doors, paintings, lighting fixtures, ventilation systems, and objects on shelves around the room. Rattles can happen at random during movies or music, and you can easily mistake them for distortion or background noise in the audio system. Finding the source of rattles is fairly easy, and often yields a big improvement in the perceived sound quality of your system.



The simplest way to identify rattles is to use the Rattles Test (chapter 16) found on Lucasfilm's WOW! disc. The Rattles Test uses an extremely slow frequency sweep from 20Hz to 500 Hz, recorded at the system's reference playback level. As this sweep makes its way up the frequency range, you may find a surprising number of different rattles in the room. (You may have to play the chapter up to 10dB higher than reference level to identify all the room rattles). All of these rattles could occur at one time or another during movies or music.

After you identify rattles, you can eliminate them easily. Place small pieces of felt on paintings where they touch the wall, and on the bottoms of objects in the room. Tighten up loose lighting and ventilation fixtures, and wedge felt or other materials into windows that are loose in their frames. Eliminating rattles need not turn into a major home improvement project! The idea is to simply find and eliminate any source of rattles that will interfere with your movie-listening enjoyment.

## About Lucasfilm's WOW! disc

Lucasfilm Ltd. has produced a laser disc designed to demonstrate and test your THX home theater system. Called WOW!, the disc has chapters with audio and video test signals that can be used to fine-tune your home theater system and room acoustics. It also includes educational chapters about THX audio systems, a fascinating look at how film soundtracks are made, and a great action-packed montage of scenes from various Lucasfilm movies. If you have a laser disc player and would like to get a WOW! disc, contact your Kenwood dealer.

# Kenwood SW-X1

## Subwoofer specifications.

**Note:** due to product upgrades, specifications may change without notice.

Speaker type ..... Subwoofer

Enclosure ..... Bass-reflex, floor type

Woofer ..... 12 inches (300 mm), cone type

Nominal impedance ..... 8 ohm

Minimum impedance ..... 7.8 ohm

Recommended amplifier input power ..... 75–150 watts

Sensitivity ..... 87dB / 1 watt at 1 m

Frequency response ..... 20 Hz – 5,000 Hz

Dimensions: Width ..... 19 1/4 inches (489 mm)

Height ..... 19 1/4 inches (489 mm)

Depth ..... 20 1/16 inches (510 mm) with grill  
18 inches (457 mm) without grill

Net weight ..... 57.2 lbs (26 kg)

Enclosure finish ..... High density particle board  
laminated with P.V.C. sheet

# Congratulations!

You've just installed your SW-X1 Subwoofer. Now you can experience your favorite movies with the same deep bass sound you would hear in a movie theater. So gather your family and friends, pop some popcorn, and get comfortable...

The curtain is rising.



KENWOOD U.S.A. CORPORATION  
P. O. Box 22745  
Long Beach, California 90801-5745



Printed on recycled paper using  
10% post-consumer waste.